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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,546	02/05/2002	Francis Bryselbout	000348-297	3132

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EXAMINER

SINES, BRIAN J

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/062,546

Applicant(s)

BRYSELBOUT

Examiner

Brian J. Sines

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 12, 15-19, 28 and 29 is/are rejected.
- 7) ☒ Claim(s) 2-11, 13, 14 and 20-27 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/5/2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15 – 19, 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 15 – 19, 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: Regarding claim 15, it is unclear as to how each of the means limitations are operatively connected. For example, is the means for the combustion of hydrocarbons positioned before or after the means for detection of the combined hydrocarbons in the gas? The claim merely recites a listing of features possessed by the claimed device without specifying how these features are structurally arranged to form a functional device. The structure, which goes to make up the device, must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

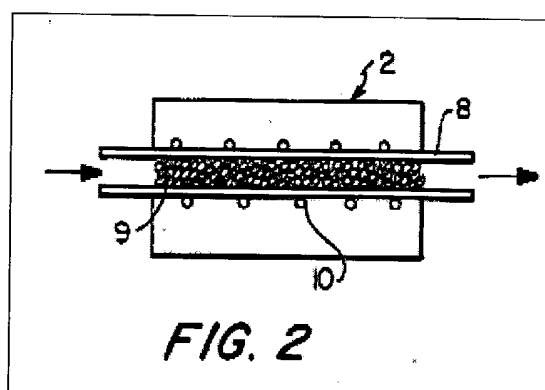
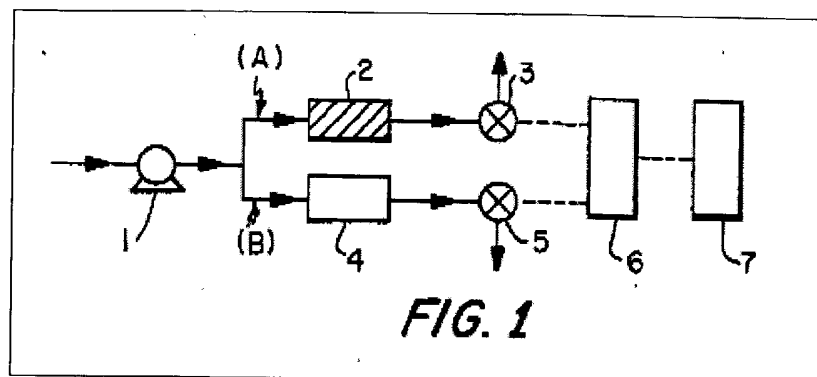
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 15 – 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Saitoh et al. (U.S. Pat. No. 4,042,332).

Regarding claim 1, Saitoh et al. teach a process for the detection of hydrocarbons other than methane in a gas predominately comprising oxygen, methane and hydrocarbons other than methane, wherein the process comprises the stages of: a stage for the detection of the combined hydrocarbons in the gas, providing a first value for the combined or total hydrocarbon content of a sample of gas; a stage of combustion or oxidation of hydrocarbons other than methane; a stage of detection of methane in the gas sample, providing a second value; and a stage of calculation of the amount of hydrocarbons other than methane by the difference between the first and second values (see col. 2, lines 1 – 27).

Regarding claims 15 – 17, Saitoh et al. teach a detection apparatus comprising: a means (flame ionization detector (FID) 5) for the detection of the combined hydrocarbons in a gas, which provides a first value for the combined hydrocarbons; a means (catalyst vessel 2) comprising a catalyst (9) for the combustion of the hydrocarbons other than methane; a means (FID 3) for the detection of methane, which provides a second value; and a means (calculator 6) for the calculation of the amount of hydrocarbons other than methane by the difference between the first and second value (see col. 2, lines 1 – 66; figures 1 & 2).



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 12, 18, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. (U.S. Pat. No. 5,765,397 A) in view of Saitoh et al.

Regarding claims 18, 28 and 29, Honda et al. teach an apparatus for separating and purifying oxygen from air. Honda et al. teach an apparatus comprising: a withdrawal means (liquid oxygen withdrawing passage 11) for the withdrawal of a sample of liquid oxygen; a means (main heat exchanger 4) for the evaporation of liquid oxygen, producing an evaporated gas (see col. 5, line 6 – col. 6, line 17; col. 7, lines 30 – 43; figure 6). Honda et al. do not specifically teach the incorporation of a hydrocarbon detection device according to Saitoh et al., as discussed above. Although Honda et al. do indicate that the hydrocarbon composition of the liquid oxygen is ascertained after gasification of the liquid oxygen in the main heat exchanger (4) (see col. 7, lines 31 – 67). Hence, it is inherently anticipated that a hydrocarbon detection device, which is generally known in the art, is utilized in this measurement (see MPEP 2112). As a result, a person of ordinary skill in the art would have recognized the suitability of utilizing the hydrocarbon detection device of Saitoh et al. for the intended purpose of detecting hydrocarbon levels within the purified oxygen (see MPEP 2144.07). In addition, a person of ordinary skill in the art would accordingly have had a reasonable expectation for success of utilizing the detection device of Saitoh et al. for detecting hydrocarbon levels within the product stream of the Honda et al. system. The Courts have held that the prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. See *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (see MPEP § 2143.02). Therefore, it would have been obvious to a person of ordinary skill in the art to incorporate the teachings of

Saitoh et al. with the disclosure of Honda et al. to provide for the limitations of claims 18, 28 and 29.

Regarding claim 12, Honda et al. in view of Saitoh et al., as discussed above, teach all of the structure required to perform the recited method, which merely recites the conventional operation of that structure. It would have been obvious to a person of ordinary skill in the art to perform the method recited in the instant claims upon the apparatus, as taught by Honda et al. in view of Saitoh et al., as such is the intended operation of that apparatus.

Allowable Subject Matter

1. Claims 2 – 11, 13, 14 and 20 – 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 2, the cited prior art neither teach nor fairly suggest that the claimed process utilize a feed gas comprising at least 95 % oxygen.

Regarding claim 3, the cited prior art neither teach nor fairly suggest that the claimed method utilize a gas predominately comprising oxygen, methane and hydrocarbons other than methane in a proportion of a few percent.

Regarding claim 7, the cited prior art neither teach nor fairly suggest that the claimed process incinerate hydrocarbons other than methane using a catalyst.

Regarding claim 13, the cited prior art neither teach nor fairly suggest that the claimed process comprise a withdrawal mechanism in which the sample is carried out using a pipe for raising liquid over a lift-type sampler.

Regarding claim 14, the cited prior art neither teach nor fairly suggest that the claimed process additionally comprise a stage of triggering an alarm when the concentration or level of hydrocarbons other than methane in the evaporated gas exceeds a certain limit value.

2. Claim 19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Hartmann et al. teach measuring non-methane hydrocarbon gases. Eyre teaches cryogenic gas purification and devices. Matson et al. teach the use of a flame ionization detector in liquid oxygen production. Jain et al. teach the cryogenic purification of oxygen gas. Collings et al. teach a hydrocarbon flame ionization detector. Klemp teaches an instrument for measuring non-methane organic gases in gas samples. Darredeau et al. teach a method for controlling impurities in an air separation installation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines, Ph.D. whose telephone number is (571) 272-1263. The examiner can normally be reached on Monday - Friday (11 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Brian S. Liu". The signature is written in a cursive, flowing style.